The Impact of Science on Public Policy

Hearing by the Committee on Resources, Subcommittee on Energy and Minerals
U.S. House of Representatives

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Testimony of David L. Lewis, Ph.D.

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Madam Chairman and Members of the Energy and Mineral Resources Subcommittee:

Until May 2003, I worked as a GS-15 scientist at the U.S. Environmental Protection Agency's research laboratory in Athens, Georgia. I appreciate this opportunity to testify about science and public policy, and how important it is to ensure that public policy embraces free and open scientific debate.

Based on my 31 years of experience at the EPA, I can assure the Members of this Subcommittee that EPA has completely politicized the scientific peer-review process, both inside and outside the Agency. I want to bring two examples to your attention. These examples illustrate the almost unbelievable extent to which the EPA has corrupted the scientific peer-review process in order to support certain political agendas and further the Agency's self-interests.

These examples involve EPA's efforts to cover up problems with its 503 Sludge Rule – a rule that allows processed sewage sludge (biosolids) to be used for mining reclamation and similar uses within the purview of this Subcommittee. EPA promulgated the Rule in 1993 despite the fact that it failed the Agency's internal scientific peer-review process. While EPA's position is that the Rule adequately protects public health and the environment, a growing number of workers handling sludge and residents living near land application sites are reporting illnesses and deaths of humans and animals.

On December 24, 2003, the Assistant Administrator EPA's Office of Water issued a Decision dismissing any linkage between exposure to sewage sludge and adverse health effects. My testimony will show that the Assistant Administrator:

- Chose not to acknowledge the existence of peer-reviewed research in leading scientific and medical journals supporting such a linkage

- Relied on information from an anonymous, non-peer-reviewed white paper – which the EPA Inspector General had recommended one EPA employee be disciplined for distributing

- Used data that the EPA knew the State of Georgia had found to be unreliable, possibly even fraudulent – and which the EPA had funded university researchers to publish in a peer-reviewed journal knowing that the data were unreliable

As part of my official EPA duties from 1996-2003, I researched the growing number of anecdotal reports alleging illnesses and deaths from exposure to sewage sludge applied under EPA's guidance. To do this, I surveyed the affected individuals, obtained their medical records, collaborated

with some of their treating physicians, gathered local government records on land application, and analyzed environmental samples and other relevant information. An overview of these studies is published in a peer-reviewed *Research Commentary* in the current issue of the National Institutes of Health journal, *Environmental Health Perspectives*.
[http://ehp.niehs.nih.gov/docs/2004/112-2/toc.html]

Based on these studies, I wrote a research paper co-authored with several University of Georgia scientists and one of the physicians treating children exposed to sewage sludge. We concluded that the nature and timing of these illnesses suggested that chemical irritants in sludge dusts, which irritated the skin, mucous membranes, sinuses, and respiratory tract, rendered people susceptible to infection. This was the first study linking illness to land applied sewage sludge and it revealed an important exposure pathway – airborne dusts – which EPA had overlooked.

The following two examples show how EPA completely corrupted the scientific peer-review process in an effort to stop our research and discredit our peer-reviewed articles published in leading science and medical journals.

Example I : Corruption of EPA's Internal Peer-Review Process

In an effort to stop me from publishing research on adverse health effects of sewage sludge, a senior EPA official in Washington, DC, Dr. John Walker, completely abused EPA's internal scientific peer-review process. Dr. Walker, who played a key role in developing the 503 Rule, served as an official EPA internal peer reviewer of my first research paper on sewage sludge [1] .

In an effort to thwart its publication:

- Walker claimed to be qualified to conduct an official EPA peer-review of my microbiological research even though he had little or no training in microbiology. When deposed before the Department of Labor, he was unable to demonstrate even the most basic knowledge in the field, such as knowing whether bacteria or viruses have a nucleus.

- Walker met with a friend who is a corporate executive within the regulated community and solicited help from the corporation in peer-reviewing my research paper. Ellen Harrison, Director of the Cornell Waste Management Institute testified under oath in my Labor Department proceedings that she found this behavior "shocking." The chairman of EPA's pathogens committee testified that he would have disqualified Walker had he properly disclosed his conflict of interest with the regulated industry. A Judge in a New Hampshire Court trying a wrongful death lawsuit involving sludge issued a protective order on my manuscript. She commented in the Order that Walker's request for help

from the regulated community in peer-reviewing my paper was "precisely [the] sort of pre-publication 'input' " that the Court sought to limit." EPA's Inspector General investigated Walker's actions and recommended corrective action. EPA, however, has never taken any substantive corrective action.

- Walker gave my research article to a USDA microbiologist and asked her to provide him with a technical review. He plagiarized her three-page technical review verbatim, then added his own concluding remarks that my work was significantly flawed and should not be published. After replacing the USDA author's name with his own, he then represented the document to be his own official internal EPA technical review of my work. Walker's review made its way to the regulated community and industry trade associations, who used it to pressure the EPA Administrator to stop my research on sludge. The chairman of EPA's pathogens committee who oversaw the peer-review process later testified under oath that Walker's abuse of the peer-review process was "disgusting."

- Walker widely distributed an anonymous 28-page "white paper," publicly attacking my research at EPA and the University of Georgia. This paper, which was never submitted the scientific peer-review process, was replete with false and misleading "scientific" arguments aimed at dismissing adverse health effects and discrediting my research. It claimed that EPA did not support my research, that I was misusing my EPA position in order to conduct research on sludge at the University of Georgia (a potential criminal violation), and that EPA had not cleared any of my sludge research for publication.

  EPA testified under oath in my Labor Department proceedings, however, that the Agency is not aware of any facts supporting the white paper, and that EPA did indeed approve all of my research on sludge and cleared all of my papers for publication, and that I have not violated any government policies or procedures in conducting and publishing that research.

  Despite this, the EPA has *never* repudiated the white paper publicly or even internally. EPA officials to this day are free to use it and continue distributing it inside and outside the Agency. Incredibly, the December 2003 OW Decision (Appendix I) relies on some of the false and misleading information in the anonymous white paper to dismiss sludge as the cause of death in a case in New Hampshire.

  Ellen Harrison testified under oath that EPA's distribution of this anonymous white paper severely damaged my reputation at the National Academy of

Sciences and elsewhere. A University of Georgia official testified under oath that EPA's refusal to publicly deny the white paper allegations caused the University to ditch plans to recommend me for a faculty position when EPA terminated me.

- Walker funded an Internet website for an industry trade association (the New England Biosolids and Residuals Association, NEBRA) that attacks my research. NEBRA published the white paper allegations worldwide and ran regular updates attacking my research. Their website recommended that the biosolids community use Walker as an expert on biosolids related issues. [The website includes an acknowledgment that it is funded by EPA's Office of Water.]

Example II.: Corruption of the Outside Scientific Peer-Review Process

As difficult as it may be to believe, EPA's corruption of the external peer-review process is even more flagrant. As a case in point, the December 2003 OW Decision dismissing illnesses and deaths linked to sludge (Appendix I) supposedly debunks reports that hundreds of cows died from exposure to sewage sludge. These deaths occurred on two dairy farms near Augusta, Georgia during the late 1980s and continued through the 1990s.

Veterinarians treating the cows analyzed liver biopsies and found toxic levels of cadmium and molybdenum. They traced to source to Augusta sewage sludge, which was applied to fields where hay was grown to feed the cattle. In 1998, the Department of Environmental Protection (DEP) of the Georgia Department of Natural Resources investigated the Augusta waste treatment facility that produced the sludge to see if it could be harming the dairy operations (Appendix III). Their audit found that analytical data reported by the City of Augusta, which indicated that levels of heavy metals in the sludge were low, were completely unreliable, possibly even fraudulent.

The EPD report noted that the sludge was so corrosive that it dissolved fences and other metal structures, and was emitting toxic fumes that could make cattle sick. As a result, it recommended that the Augusta sewage sludge operation be immediately shutdown. Robert Brobst, an EPA official with responsibilities in the biosolids program, was directly involved in the 1998 EPD investigation (Appendix IV).

When I left EPA last year, I was following up on the Georgia EPD investigation as part of my official duties. Specifically, I was collecting and analyzing samples of Augusta-sludged hay used for erosion control along Georgia highways. Workers spreading the hay in 2002-2003 had developed severe breathing difficulties and chronic liver disease after breathing dusts from the hay.

EPA's Assistant Administrator for OW concluded in his December 2003 Decision (Appendix

I) that Augusta sludge spread in the 1980s and 1990s had low levels of heavy metals based on analyses that met EPA Quality Assurance/Quality Control (QA/QC) procedures and were independently peer-reviewed. These data, as it turns out, are the *same* data that the Georgia EPD found to be completely unreliable, possibly even fraudulent.

How did EPA managers pass analytical data that were completely unreliable, if not fraudulent, through its internal QA/QC procedures and publish them in a respected peer-reviewed scientific journal, and then use them to support EPA's position? Here is what EPA did, step by step:

Step 1. EPA funded the University of Georgia (UGA) to conduct research to determine whether heavy metals in Augusta sludge could have poisoned dairy cows eating hay fertilized with the sludge. This gave EPA access to independent researchers willing to facilitate the publication of EPA data. EPA's contact at UGA was Julia Gaskin, a non-tenured faculty member who does outreach-related work with municipalities that land apply sewage sludge. As senior author of the research paper, she was the person responsible for drafting the manuscript, incorporating any changes recommended by other authors and reviewers, submitting the paper for publication, and working with other authors on any revisions recommended by the journal's peer-reviewers.

Step 2. EPA assigned Robert Brobst the task of working with Gaskin on the EPA-funded project. Brobst participated in the 1998 EPD investigation that found the Augusta analytical data to be unreliable. This assignment gave him the opportunity to co-author any research publications from the UGA project, thus allowing him to influence how the studies were done, how the results would be interpreted, and which data would be included. It also ensured that the research paper would pass through EPA's clearance process for policy-related scientific products. Approval of policy-related products is coordinated with the program offices that develop policies. Thus, Brobst and the Office of Water would have direct input into the content, interpretation of data, and conclusions – including how Gaskin and others would respond to any changes in the manuscript recommended by the journal's independent peer-reviewers.

Step 3. When the research was done and the manuscript written, the suspect Augusta data indicating low levels of heavy metals in the City's sludge were included as a table (Appendix II, Table 2). The authors then referred to the table containing unreliable or fraudulent data as a basis for concluding that the Augusta sludge met federal and state requirements for metals and, therefore, could not have harmed the dairy herds.

Step 4. EPA officials associated with the Office of Water biosolids program prepared

the December 24, 2003 Decision for the Assistant Administrator's signature. In it, they used the Gaskin paper, and its clearance through the Agency's QA/QC procedures, to argue that reliable, peer-reviewed scientific data showed that the Augusta sludge complied with EPA's regulations requiring safe levels of heavy metals and, therefore, could not have been harmful.

This whole process, of course, is nothing more than a scam. Yet, EPA uses it again and again to pass unreliable scientific data and erroneous conclusions supportive of EPA policies through the Agency's QA/QC procedures and inject them into the peer-reviewed scientific literature. It is a scam run by program office managers who are not qualified as research scientists and whose official position descriptions require that they defend EPA policies. In this case, the same EPA officials who developed the Agency's sludge policy are using the vast resources of the federal government to cover up adverse health effects and environmental damage resulting from the scientifically flawed policy they created.

Dr. Alan Rubin, summarized this sorry state of affairs in his own words during a Labor Department proceeding on April 27, 1999. Rubin, an EPA Office of Water official, credits himself with being the primary author of the 503 Rule. He was questioned under oath about his strong motivation to defend the 503 Sludge Rule:

Rubin stated:

> *I consider it to be my major professional achievement*.

When asked to elaborate, Rubin replied:

> *Well, I think my professional reputation, to a large extent, is based on my association with biosolids – 503 and its technical basis. So I feel my reputation would be somewhat disparaged if the basis of the rule and the scientific findings were shown to be in error*.
>
> (*Lewis v. EPA*. U.S. Dept. of Labor. Case No. 99-CAA-12)

In 2000, the full Committee on Science of the U.S. House of Representatives held hearings into Rubin's effort to defend the 503 Rule (2, 3). Rubin had sent threatening letters to private citizens raising concerns about the effects of sludge on their farms. He also instructed EPA's national research laboratory in Cincinnati to follow up on a scientific presentation I made in which I concluded that pathogens trapped in greases and oils in sewage sludge could escape EPA methods for enumerating microorganisms. He then publicly released preliminary data that appeared to contradict my conclusions. Other results at the Cincinnati laboratory, which supported my conclusions, were not released. None of the data Rubin released had been subjected to EPA's QA/QC procedures or peer-reviewed. To this day, Rubin still plays a key role in managing EPA's biosolids programs.

EPA's corruption of the scientific peer-review process with respect to the 503 Rule has already led to disastrous consequences. It clearly threatens public health and the environment, including our energy and mineral resources. Hundreds of people working at or living near reclaimed mines and other sites have reported serious, even life-threatening, illnesses where tons per acre of sewage sludge have been applied under this Rule. Several otherwise healthy children have suddenly died after being exposed to sludge, including 8-year-old Tony Behun who rode a four-wheeler across a coal mine covered with sludge in Pennsylvania.

If EPA is to have an Office of Research & Development that supports research and evaluates the Agency's policies, it must have integrity. To have integrity, the ORD cannot be controlled or unduly influenced by those who create the policies it evaluates. The strength of our economy largely depends on EPA providing scientifically sound rules and regulations that are neither overly restrictive nor under-restrictive of the industries it regulates. EPA's lack of integrity, in this case, is hurting municipalities and the regulated industry.

In conclusion, EPA obviously has not achieved a reasonable separation between politics and objective science and fostered an open scientific debate. For the Agency to employ research scientists to assess its policies while allowing program offices to thwart and corrupt the scientific peer-review process makes no sense whatsoever. It completely undermines the Agency's ability to fulfill its mission. Sadly, the two examples in this testimony show that EPA does not even have adequate safeguards in place to ensure that its top managers work in the public interest rather than serve their own self-interests.

My resignation, which EPA unilaterally effected

Up until May 28, 2003, I was employed by the U.S. Environmental Protection Agency at their research laboratory in Athens, Georgia. My work focused on environmental chemistry and microbiology, especially as they relate to the biodegradation of pesticides and the persistence and transmission of infectious microorganisms in the environment.

My work as a microbiologist first drew national attention in the early 1990's when six patients in a Florida dental practice contracted HIV. I published a series of articles in *Lancet* and *Nature Medicine* showing that blood trapped in lubricants inside dental devices can escape disinfection and spread the AIDS virus among dentists and patients [4, 5]. This research, which I conducted at the University of Georgia, prompted new heat-sterilization guidelines worldwide.

On May 28, 2003, EPA unilaterally effected my resignation for publishing research unsupportive of EPA policies in *Nature* and other leading peer-reviewed science journals [6]. The U.S. Department of Labor is currently considering whether EPA violated federal environmental whistleblower laws in its efforts to stop me from publishing research showing that EPA's sewage sludge regulation is inadequately protective. The regulation, known as the 503 sludge rule, allows processed

sewage sludge (biosolids) to be used as a fertilizer on farms, public parks, and other lands.

Growing numbers of people living near sites where the sludge is spread have reported bacterial and viral infections, some fatal, after contacting sewage sludge and breathing dusts blowing from the treated fields. My research at EPA and the University of Georgia showed that chemicals in processed sludge that irritate the skin and respiratory tract may make people susceptible to infections. [1, 7, 8]

In 2002, the National Academy of Sciences echoed many of the same concerns I had raised about the scientific basis for EPA's sludge rule [9]. The EPA is now following up on the some of the research I initiated and recommended [10]. Despite this, EPA still insisted that I resign my EPA position for publishing research critical of the scientific basis of some of the Agency's regulations and policies.

My troubles at EPA began in 1996 when I published a two-page commentary in *Nature* titled "EPA Science: Casualty of Election Politics" [11]. The commentary explained why inadequate science in some EPA regulations stands to harm, rather than protect, public health and the environment. In news interviews about the article, I often referred to EPA's sludge rule as a prime example of how a lack of good science can cause significant harm.

Washington EPA officials accused me of violating ethics rules and the Hatch Act by publishing articles critical of the Agency's policies. EPA later conceded that I had not broken any rules; and, the Labor Department found that EPA had violated whistleblower laws by accusing me. Nevertheless, EPA continued to retaliate by denying my promotion to GS-15 using criteria that did not apply to any other EPA employees. My promotion was strongly supported by local EPA managers, who testified that Washington EPA officials were directly interfering with their ability to approve my research. The Labor Department investigated and issued another ruling in my favor.

To settle my claims with the Labor Department in 1998, Deputy Assistant Administrator Henry Longest insisted that I be detailed to the University of Georgia for four years and agree to resign afterwards. Mr. Longest developed EPA's sludge policy during the Carter Administration when he was assigned to the Office of Water. He later transferred to the Office of Research & Development and became the top career manager over the Agency's research scientists.

I agreed to Mr. Longest's proposal on the condition that EPA comply with all rules and regulations governing such assignments, which are covered under the Intergovernmental Personnel Act (IPA). My only other choice was to remain at EPA where Mr. Longest would most certainly continue to retaliate against me and against any of my supervisors who wanted to approve my research for publication. As soon as I transferred to the university, the EPA harassment intensified. My local EPA director testified under oath that EPA ignored IPA rules and regulations, which would have shielded me from the Agency's efforts to interfere with my UGA research.

At the University of Georgia, my research on sewage sludge continued and I published a second paper in *Nature* [12]. In it, I raised new questions about the science behind the sludge rule. Dr. Rosemarie Russo was removed from her position as director of the Athens EPA laboratory by Norine Noonan, the ORD Assistant Administrator. The Labor Department investigated once again and found that Washington EPA officials had removed Dr. Russo for approving my 1999 *Nature* article. Dr. Noonan testified that she decided to remove Dr. Russo after consulting with Mr. Longest.

In 2000, the Science Committee in the U.S. House of Representatives held hearings into retaliations against me and Dr. Russo. Dr. Russo was reinstated to her position and President Bush later signed the No Fear Act. This Act was introduced by the Science Committee to better protect federal employees against such retaliation. It passed Congress with overwhelming bipartisan support.

Nevertheless, Dr. John Walker, an EPA official in the Office of Water who helped Longest develop the sludge policy, initiated yet another major effort to shut down my research. He publicly distributed an anonymous "white paper" about my work as part of his official EPA duties. This 28-page paper,"Analyses of David Lewis' Theories Regarding Biosolids," alleged that my research was faulty and that I was misusing my EPA position to conduct research on sludge at the University of Georgia.

Dr. Walker, who is not a microbiologist, also asked a USDA microbiologist he funded to write a scientific peer-review critical of my research. He then submitted her review as his own formal internal EPA peer review of my work. Associates of Walker, who he funded at various industry trade associations, then used Walker's bogus peer review to try and pressure EPA Administrator Christie Whitman to immediately end my research on sludge.

A University of Georgia official testified during my last Labor Department proceedings (held in March-April, 2003) that the white paper allegations caused the university to scrap plans to hire me after I left EPA. Ellen Harrison, director of the Cornell Waste Management Institute and a member of the National Academy of Sciences panel that reviewed EPA's sludge rule, also testified. She stated that although my research played a key role in the Academy's assessment of the science behind the sludge rule, Walker's actions seriously damaged my reputation with the Academy.

At the Labor Department hearing in 2003, the chairman of the pathogens committee at EPA's national laboratory in Cincinnati described Walker's actions in manipulating the scientific peer review process as "disgusting." Moreover, EPA stipulated in the proceeding that there is no factual basis to any of the allegations of misconduct contained in the white paper that Walker distributed.

Since the publication of my first commentary on EPA science, I have enjoyed wide support from both Democrats and Republicans alike. Senator James Inhofe, who Chairs the Environment and Public Works Committee, and Senator Charles Grassley, Chairman of the Finance Committee, sent former EPA Administrator Christie Whitman a letter asking her to intervene on my behalf and prevent my termination [13]. The Administrator, however, left before replying and the letter was passed down

to a low-level EPA official working under Henry Longest.

Before EPA began its relentless and ever-escalating retaliations against me for publishing research unsupportive of EPA's policies, I was highly regarded within the scientific community both inside and outside the EPA. Dr. Bernard Goldstein, who President Reagan appointed to head EPA's Office of Research & Development, recommended me for promotion to GS-15. He lauded the fact that I openly questioned the science behind EPA policies despite the Agency's "heavy-handed" tactics toward its scientists who fail to toe the line politically.

Former EPA Administrator Carol Browner also presented me with the Agency's science achievement award for my genetic studies of bacteria that break down pesticides. The study was co-authored by President Clinton's associate director for the environment for the White House Office of Science & Technology Policy.

Directors at the EPA research laboratory in Athens Georgia, who testified at the Labor proceedings, stated that I was an ideal employee in every way, and that my expertise in infection control was virtually irreplaceable. They said they saw no reason why I should have been compelled to resign from the EPA.

The Sierra Club formally commented on my contributions to environmental science when EPA opened a public docket on the sludge issue last year. The organization wrote that it was "appalled" over my termination, especially given the fact that EPA adopted many of my recommendations in their response to the National Academy's report on sludge [14].

I have been unemployed since leaving EPA last year. I currently maintain an office in the Department of Marine Sciences at the University of Georgia where I continue to do environmental research funded by my own personal funds and private donations. I am also directing an epidemiological study with the University of Maryland School of Medicine on hepatitis C infections in Egypt, acquired from flexible endoscopes.

Recommendations

I. Referral to the EPA Inspector General

Because of the egregiousness of EPA's corruption of the scientific peer-review process**,** I request that the full Committee on Resources formally refer this Testimony to the EPA Inspector General, who is responsible for investigating cases of scientific misconduct.

II. Enacting Additional Whistleblower Protections

Scientists at EPA must be protected against retaliation for presenting scientific views differing

from those supported by EPA managers. Since 1996, I have used "employee protection" provisions contained in five environmental laws to protect myself from EPA's harassment. These laws are administered by the U.S. Department of Labor under 29 C.F.R. Part 24.

Unfortunately, there are numerous loopholes in the law, which must be corrected with legislation. First, many of our environmental laws, such the Endangered Species Act, contain no protection whatsoever for scientists who disagree with EPA policies. These laws should be amended to include protections identical to the protections under the laws covered in 29 C.F.R. Part 24. Secondly, all of the current employee protection provisions under all environmental laws have a ridiculously short "statute of limitations," which results in most otherwise legitimate claims never being filed. Currently, environmental laws require that scientists must file their claims within a mere 30 days from the adverse action. The Administrative Conference of the United States recommended that this filing date be extended to 180 days. Thirdly, the EPA must be compelled to internally protect scientists from retaliation. The "lessons learned" from my case, and the case s of other EPA scientists who also suffered from retaliation, should be incorporated into law and/or an administrative order requiring EPA to take proper corrective actions [15].

III. Safeguards at EPA

The Subcommittee should consider requiring that EPA establish internal safeguards designed to prevent its program offices, which develop the Agency's rules and regulations, from interfering with scientists in the Office of Research and Development (ORD), who are charged with assessing the scientific basis of the rules and regulations.

This includes, but is not limited to:

- Requiring that all rules and regulations have the concurrence of the Assistant Administrator for ORD before they can be promulgated

- Prohibiting program offices from being involved in the official internal peer-review or clearance and publication of ORD products

- Eliminating potential conflicts of interests between program office and ORD personnel, such as transferring senior program office staff to management positions over ORD scientists

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13. National Whistleblower Center, Washington, DC. www.whistleblowers.org/senateletDL.htm

14. National Whistleblower Center, Washington, DC. www.whistleblowers.org/html/sierra2.htm

15. Testimony of the National Whistleblower Center before the "Joint Hearings" conducted before the Committee on Government Operations of the U.S. House of Representatives, "Elevation of the EPA to a Cabinet-Level Department (May 6, 1993), p357.

ADDENDA:

EXAMPLE I: EPA Plagiarizes to Cover Up Incompetence, Corrupt Peer-Review Process

In an effort to stop the Athens EPA research laboratory from publishing my research linking illnesses and deaths to sewage sludge, Office of Water (OW) official Dr. John Walker created a bogus official internal EPA peer-review of one of my draft research articles. The review was used by the regulated community to try and pressure the EPA Administrator to shut down my research on sludge.

Dr. Walker, who is not a microbiologist, was the main author of the Office of Water Research Strategy responding to the National Academy of Sciences report on pathogen risks from sewage sludge. This Research Strategy, which was published last year in the *Federal Register* [10], outlined microbiological research that the Agency would undertake to address concerns raised by the Academy.

Because this EPA author of the Research Strategy was technically incompetent in microbiology, he liberally plagiarized experimental designs and research approaches of others while citing only his own published works in the general field of biosolids.

Sections of papers that Dr. Walker plagiarized included much my own work in draft manuscripts going through internal EPA peer-review. A draft of the Office of Water research strategy shows that internal reviewers pointed out that EPA should cite my work as a source of the Research Strategy.

In further support of my testimony, the National Whistleblower Center has prepared a formal letter to this Committee outlining, in detail, EPA misconduct related to the peer-review process within the Agency. I ask that the letter from the NWC be placed onto the record as part of my testimony.

EXAMPLE II: EPA Funds a University to Publish Unreliable/Fraudulent Data

Appendices I-IV

The enclosed appendices show that the U.S. Environmental Protection Agency's Office of Water funded the University of Georgia (UGA) to submit chemical analyses of sewage sludge samples from the City of Augusta, GA for publication in a peer-reviewed scientific journal knowing that the data were completely unreliable, possibly even fraudulent.

After publishing the data in a scientific journal, the Office of Water used the peer-reviewed research article to dismiss complaints from two large dairy farms that heavy metals (cadmium, molybdenum) in the sludge killed hundreds of head of cattle, poisoned the soil, and destroyed their dairy operations. [Appendix I]

The chemical analyses reported by the City of Augusta were published in 2003 in the *Journal of Environmental Quality* (Gaskin et al., *J. Env. Qual*. **32**:146-152, Appendix II). Specifically, metals concentrations presented in Table 2 and elsewhere in the UGA paper indicated the City complied with federal and state requirements concerning heavy metals in sewage sludge (biosolids); therefore, the sludge – if the data were credible – could not have been toxic.

EPA, however, knew the data were unreliable because, in 1998, the Environmental Protection Division (EPD) of the Georgia Department of Natural Resources audited the laboratory that generated the data. The audit showed that these and other data were possibly falsified and were so dubious that they recommended that the Augusta land application program be *shutdown immediately*.

Robert B. Brobst of the U.S. Environmental Protection Agency, who co-authored the UGA article, was directly involved in the 1998 EPD investigation and was fully aware of the findings in the audit report. Despite this, he used EPA's Quality Assurance/Quality Control (QA/QC) procedures, and the independent peer-review process of a scientific journal, to lend scientific weight to data EPA knew was unreliable. The purpose of this deception was to support EPA's position that its biosolids program is a model operation and that no credible scientific evidence exists that land application practices have ever harmed humans, animals, or the environment.

The Assistant Administrator of EPA's Office of Water then issued the December 2003 Decision dismissing reports of illnesses and deaths in livestock exposed to Augusta sewage sludge. This Decision largely rested on the basis that the Augusta data met the Agency's QA/QC requirements and were published in a peer-reviewed scientific journal.

The EPA Decision (Appendix I) alluded to the 1998 EPD audit but did not give the full citation in the references section and did not disclose the findings of the audit. Instead, EPA cited to an EPD inspection performed on February 16-18, 1999 – after the facility was cleaned up and made fully operational. The Office of Water, therefore, chose not to disclose the 1998 audit, which showed that

Augusta did not comply with federal and state regulations and, instead, cited to a later audit of the laboratory after the violations were corrected, stating that the EPD "did not find any violations of the Part 503 requirements...".

BRIEF DESCRIPTIONS OF THE APPENDICES

APPENDIX I. December 24, 2003 EPA Office of Water Decision.

The U.S. Environmental Protection Agency rejected a Petition seeking a moratorium on land application of sewage sludge. EPA ignored peer-reviewed scientific studies that were unsupportive of the Decision, cited to false and misleading information that was not scientifically peer-reviewed to support the decision, and used one peer-reviewed study that an Agency official co-authored and published data the Agency knew were unreliable. The Petition, which was filed by public interest groups, was largely based on the recent jury verdict supporting plaintiffs' claims in *Boyceland Dairy v. City of Augusta.*

Plaintiffs claimed that toxic levels of cadmium and molybdenum in sewage sludge produced by the Augusta, Georgia Wastewater Treatment Facility poisoned farmland and killed hundreds of dairy cattle. This was the conclusion of veterinarians who treated the cattle and expert toxicologists who found toxic levels of the metals in liver samples taken from the cattle.

APPENDIX II. Gaskin, J.W., R.B. Brobst, W.P. Miller, and E.W. Tollner. 2003. *J. Env. Qual*. **32**: 146-152.

The EPA rejected the plaintiffs' claims based, substantially, on the University of Georgia research article titled "Long-term biosolids application effects on metal concentrations in soil and bermudagrass forage." [Page 12, Appendix I.] EPA argued that the concentrations of metals in Augusta sludge at the time the cattle died were below the levels required by federal and the state regulations and, therefore, could not have harmed any farmland or livestock.

EPA claims that the Augusta data "met EPA's Quality Assurance/Quality Control (QA/QC) requirements to outside independent reviewers." EPA, in other words, argues that their Decision was based on independent, peer-reviewed science. Because the UGA article was coauthored by Robert B. Brobst of the EPA, it was internally peer-reviewed by the Agency. Prior to publication, it was also independently peer-reviewed by the *Journal of Environmental Quality.* The peer-review process, therefore, appeared to give weight to the Augusta data over unpublished data provided by expert witnesses for the plaintiffs.

Table 2 of the UGA research article reproduces the results of analyses of sewage sludge samples taken when the cattle were dying. Beginning in July, 1998, the Messerly Wastewater

Treatment Plant provided sludge samples to its contractor, AMSCO, Inc., for chemical analyses. Prior to that, the facility used its own, on-site laboratory to perform the analyses.

APPENDIX III. 1998 Georgia EPD Audit Report.

In December 1998, the Environmental Protection Division (EPD) of the Georgia Department of Natural Resources investigated the Messerly facility after receiving reports of illnesses and deaths of dairy cattle eating hay grown on land treated with Augusta sewage sludge. Investigators concluded that the chemical analyses, which indicated that metals concentrations were below State and Federal requirements, were completely unreliable.

Investigators found the sludge was so corrosive that the plant had to keep it away from fences and other metal structures, and that toxic chemicals in the sludge *could be causing the health problems in the dairy cattle*. Because of this, the EPD recommended that *the* [Augusta] *land application program should be shutdown immediately... In the future, the City should not be allowed to land apply sludge.*

Excerpts from APPENDIX III: 1998 GA EPD Audit Report

EPD reference numbers cited below are located at the bottom of each page of the EPD Report and the internal EPD transmission message.

EPD 12968:

Laboratory Problems

1. Many procedure violations were noted. (40 CFR 136)

2. Many records violation were noted. (NPDES Permit Part I.C.4. and 6.)

3. It was noticed that the lab was very dirty and that this dirty state of lab may possibly compromise the data.

EPD 12968- 12969:

... Laboratory Report Review Problems

3. There were times when the lab reports would indicate times of inadequate facility treatment, but the effluent data on the monitoring reports never reflected any permit noncompliance.

EPD 12970:

2. ... However, the (laboratory) *data given to AMSCO is for one waste stream only and it is not identified (selective sampling?). ... They have been basing their land application on the data given to them.*

3. AMSCO is having the metals and nitrogen series analyses run by an outside laboratory. However, the City has been collecting the sludge samples for them (selective sampling?). The application rate calculations are all being based on the data. Therefore, the application rates are incorrect when a tank other than the one sampled is used to load the trucks.

EPD 12971:

8. The presence of sulfides in the sludge could be causing the health problems in the dairy cattle.

Although the Facility appears to be in permit compliance according to the discharge monitoring reports, the actual visual inspection of the Facility and laboratory is horrible. The Facility staff is in need of training and direction.

Our recommendations are that the land application program should be shutdown immediately... In the future, the City should not be allowed to land apply sludge.

EPD 12972 - 12973:

Sludge Plan - major portion of the audit ... due to two complaints by farmers against Augusta for poisoned cows...

Most significant problems are:

+200 truckloads a day are leaving facility for land application carrying sludge much of which may not be meeting requirements.

While the sludge program is run by a reputable contractor ... inappropriate sludge sampling (was) *conducted by Augusta [city runs samples ... and uses whatever results look best]* (This) *makes the whole program suspect.*

LABORATORY:

**dirty/rusty;*

**procedure violations;*
**records violations.*

MANAGEMENT:

**literally a joke*
**staff is the most demoralized bunch of people I have ever witnessed;*
** ... I guarantee that there aren't enough qualified people there.*
In summary ... management is largely nonexistent on site.

ALSO - EPA is very interested in the Augusta facility and wants a copy of our audit report when finished. EPA is now telling nancy that what they did onsite last week will be considered ... expect rapid EPA involvement for here on out....

APPENDIX IV. EPA record of Robert Brobst's activities in Augusta, GA

The 1998 EPD Audit Report points out that the EPA was intimately involved in the investigation of problems at the Augusta facility. Robert B. Brobst, the EPA coauthor of the UGA paper, handled EPA's interests in the investigation. As this internal communication shows, Mr. Brobst was not only familiar with problems sludge was causing in Augusta, but with widespread groundwater contamination from biosolids across the country.

In this internal communication, EPA describes the Augusta situation as one of many "Biosolids Horror Stories" across the country. Like the Augusta land application operations prior to 1999, EPA has kept farmers and the public in the dark about all these other horror stories as well.

[SEE ENCLOSURES: Appendices I - IV]